

THE ALTITUDINAL RANGE OF *POLYXENUS LAGURUS* (LINNÉ) IN BRITAIN

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INTRODUCTION

Having found bristly millipedes at 170m on the edge of the Dartmoor National Park during 2011, I began to wonder how high the species has been found in Britain. Its generally southern and coastal distribution would suggest that it is effectively confined to the lowlands. It seemed worthwhile therefore to examine the data collated for the *Atlas* (Lee, 2006). This includes much altitudinal data although only about 50% of records actually contain this information.

THE DATA

Examination of the *Atlas* data found that 180 records provide altitude data. These range from sea level to 600m but with 90% at or below 100m. The distribution is shown in Fig. 1 and clearly shows that this millipede is primarily found at low altitude in Britain but can on occasion be found at higher altitudes.

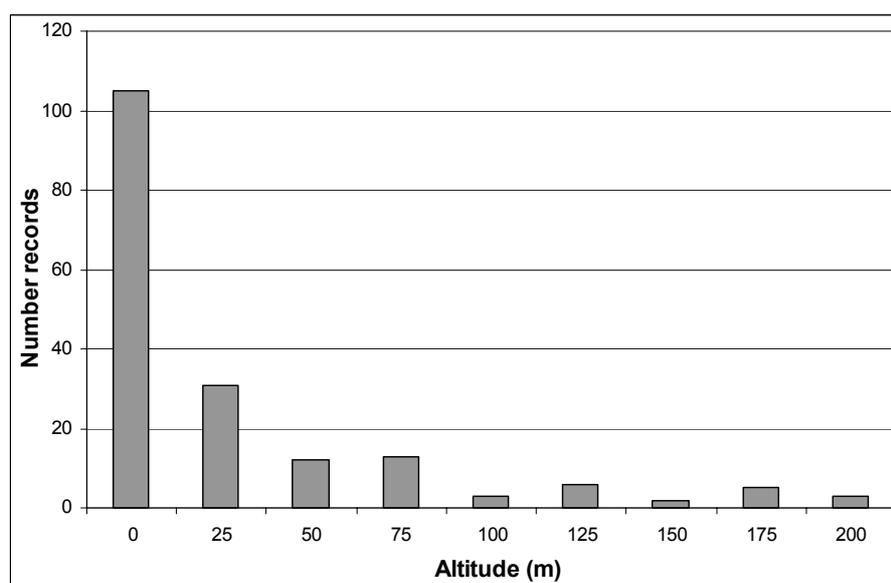


FIGURE 1: Altitudinal range of *Polyxenus lagurus* in Britain

Each bar represents a 25m altitude range, while the final bar represents all records in excess of 200m.

The particular circumstances of the higher altitude records are interesting to examine in some detail. The two highest altitude records – 600m and 540m – are from the same site: Tarren yr Esgob (VC42) in the Black Mountains of South Wales. The Tarren is a north-east facing crag of Old Red Sandstone with boulder-strewn steep talus slopes below. Three separate recorders were involved and two dates. It is fortunate that a good habitat description is available (Harding, 2006) as the site is famous for its population of the rare pill woodlouse *Armadillidium pictum* Brandt: the escarpment is over 4km long, the rocks of the Lower Old Red Sandstone continental facies surface as a range of outcrops and cliffs, including some calcareous cornstones.

The next height records are much lower, 200 or less, and come from Dartmoor. The fact that the highest records come from the south west of Britain is not surprising as the south east is a generally lowland area. Interestingly though, it has also recently been found at about 210m in the Chiltern Hills, in the south east (M. Harvey, pers. comm.).

Although primarily known in Scotland from coastal areas, it has recently been found at 220m at Cambus o'May near Ballater in Aberdeenshire (M. Davidson, pers. comm.). This was in pine litter, which is a previously unrecognized habitat type for the species. Presumably it feeds here on micro-organisms encrusting the surfaces of the dead pine needles and perhaps fallen twigs. This suggests that it might also be present more widely in higher pinewoods on Deeside and Speyside. Two uncategorized habitat records are listed in Alexander (2006) – from heather and from a dead grass blade. These may be consistent with the pine litter situation. However, it has not been reported from broad-leaved woodland leaf litter – even in well-lit situations - nor from grass litter, and so its presence in pine litter is intriguing. Kime & Enghoff (2011) mention that relict populations in the south of the Middle-Russian Upland live in hard shrubby litter on limestone denudations. So a litter association does seem to be widespread, albeit poorly understood at present.

DISCUSSION

Alexander (2006) reviewed the habitat preferences in Britain and showed that - when occurring away from trees - the millipedes are generally found on dry rocky hillsides or the maritime therophyte zone on rocky seacliffs. Exposed bedrock is very much a feature of the north and west in Britain, although the chalk ridges of the SE – including the Chilterns - also include areas of exposed rock. Examination of the altitude data suggest that *Polyxenus lagurus* is merely occurring on suitable rocky areas within its geographical range. It is perhaps the geography of the landscape that determines its presence or absence rather than altitude.

This conclusion is consistent with experiences elsewhere across Europe. The European Atlas (Kime & Enghoff, 2011) mentions the highest altitudes at which it has been found as 1700m in the Swiss Alps and 2600m in Bulgaria.

However Fig. 1 is by no means representative of the frequency of exposed bedrock within southern Britain; there is clearly a strong bias in favour of exposed rock at lower altitudes. It seems likely that - although exposed rock is most frequent at higher altitudes - these are in some way sub-optimal for *Polyxenus lagurus*. Microclimate must be the answer, that the milder climate of the coastal rocky zone provides greater opportunities than the relatively cold rocky hillside situations with their exposure to prolonged winter cold.

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